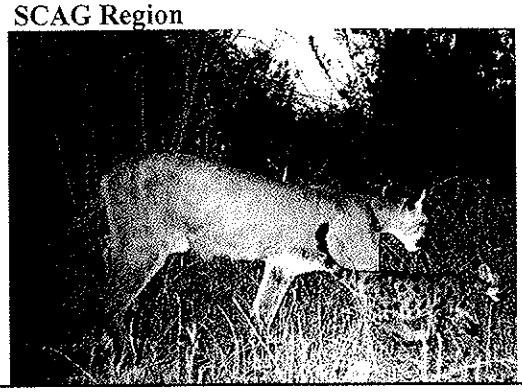
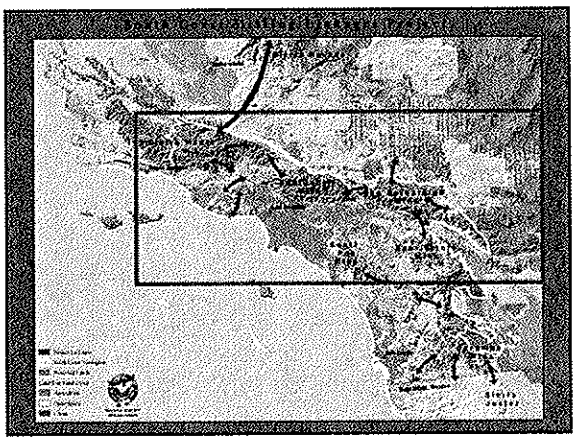
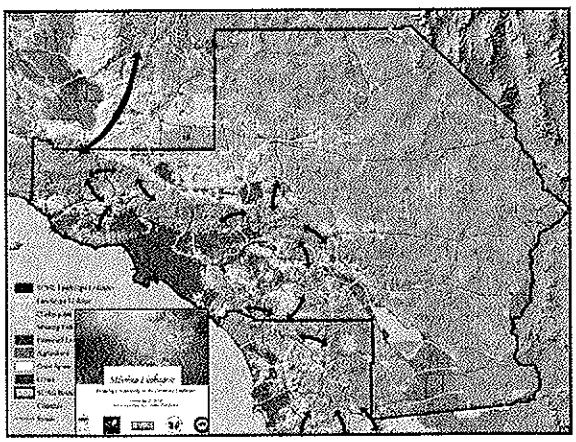
Conserving Wildlife Corridors in the SCAG Region





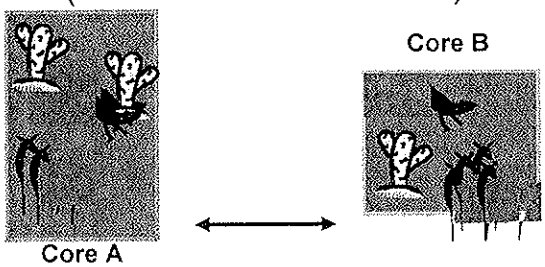


We will build on the science-based approach

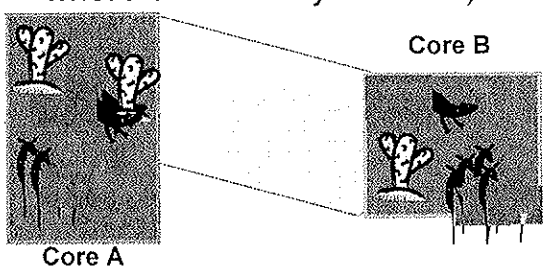
developed for 2 efforts

- Arizona Wildlife Linkage Workgroup
  24 linkage designs in Arizona, 2005-2008
- South Coast Missing Linkages
  15 linkage designs in S. California, 2001-2006

Start by defining the "rooms" (Corridors connect cores.)

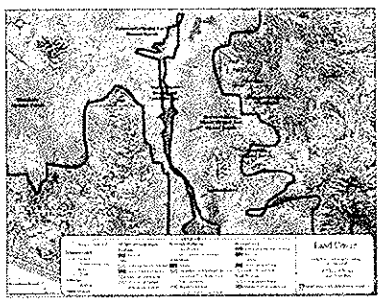


Identify Potential Linkages (areas where connectivity is at risk)



Foreground and background define each other

Cores, Potential Barriers, and Potential Linkages define each other



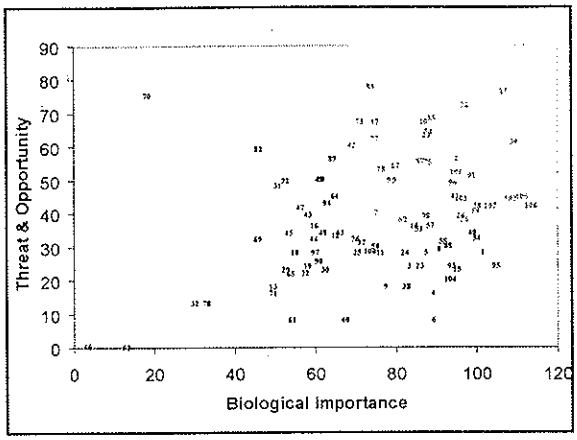
"Context not content"

We calculate Biological Value of each core as function of

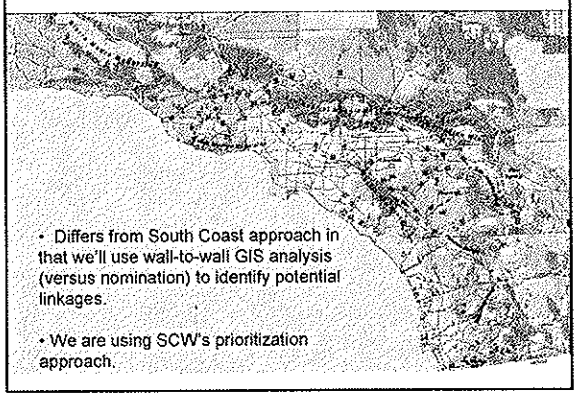
- Size
- Type
- Quality
- Uniqueness

We calculate Biological Value of each Potential Linkage as function of

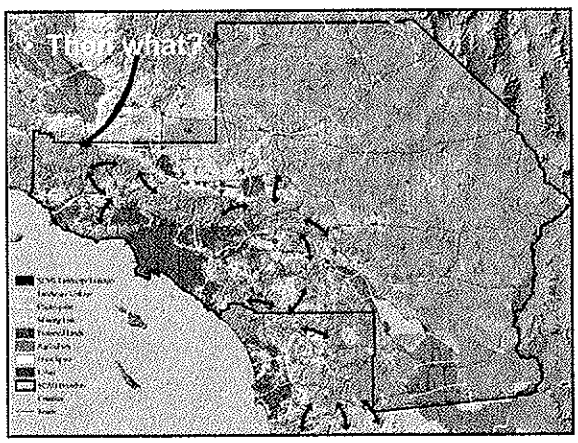
- the biological value of the 2 cores (!)
- the quality & uniqueness of the potential linkage itself are secondary factors.



18 Jan 2002 – Linkage Prioritization workshop

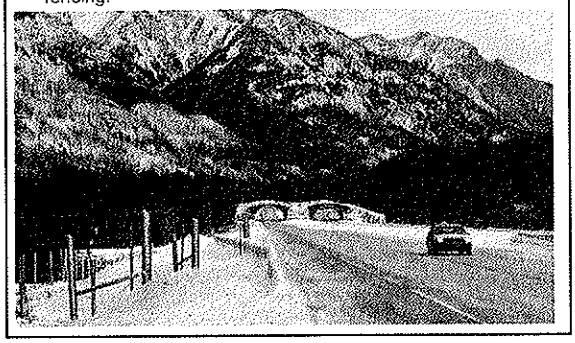


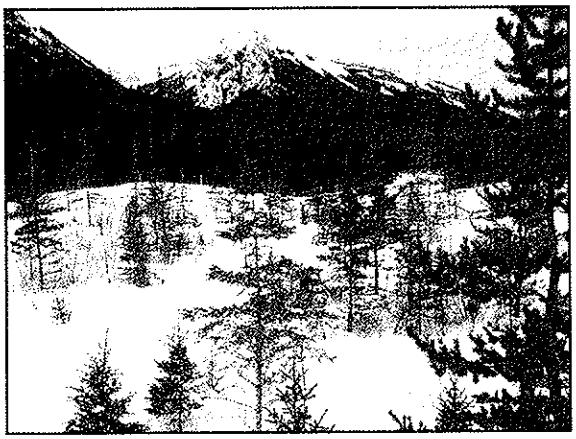
- Differs from South Coast approach in that we'll use wall-to-wall GIS analysis (versus nomination) to identify potential linkages.
- We are using SCW's prioritization approach.



Potential Linkages Across Roads

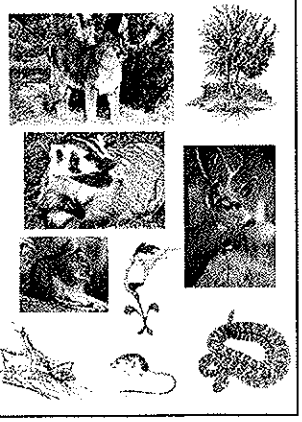
Best Management Practices: guidelines exist on frequency and type of crossing structures, integration with roadside fencing.





Potential Landscape Linkages (threats not just from a highway, but also from land conversion).

- For the high priority potential linkages, you will need to develop a linkage design based on needs of focal species



Developing Linkage Designs for High Priority Potential Linkages

You want to make sure your limited resources turn a *Potential* Linkage into a *Real, Conserved* Linkage!

And we'll make it possible to produce Linkage Designs yourself in house...

Making it easy to develop Linkage Designs: I

South Coast Wildlands has published fully-parameterized models for 109 focal species: Mammals, Amphibians, Reptiles, Fish, Birds, Invertebrates, & Plants

Making it easy to develop Linkage Designs: II

gisCORRIDOR

- My lab at NAU will offer this package of tools starting spring 2007
- Software and tutorials will be free.
- *Optional* ½-day training at low cost.
- Plus: EVALUATION tools to compare compromise designs to the biological optimum. These *new* tools will be crucial for implementation.

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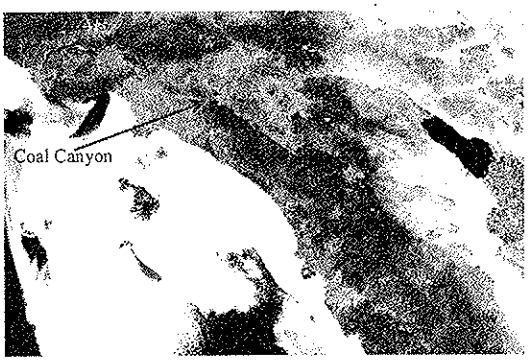
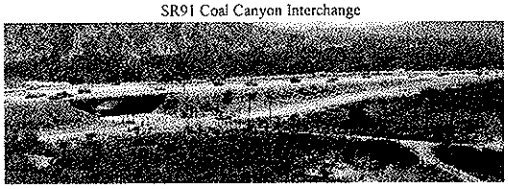


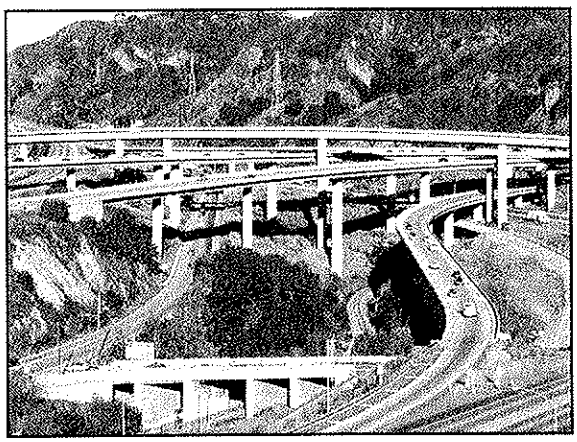
Restoring Connectivity Between Protected Areas

SR91 Coal Canyon Interchange



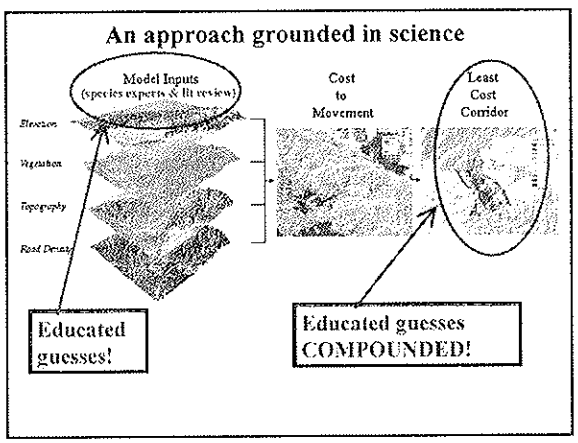
Asphalt-breaking ceremony: 10 Dec 2002

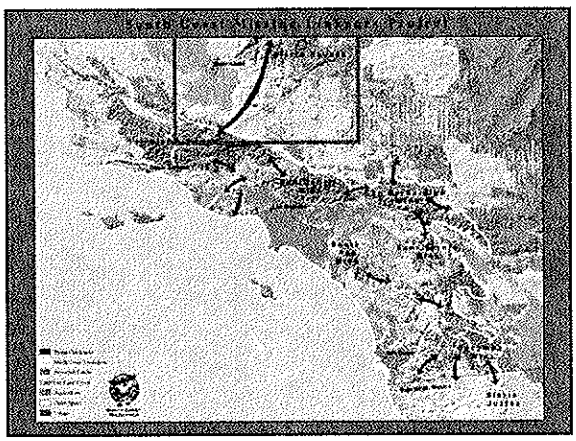
2006: $1.5-million project to recreate a natural, meandering delta for Coal Canyon Creek



Sensitivity Analysis of our Approach

Supplemental Slides

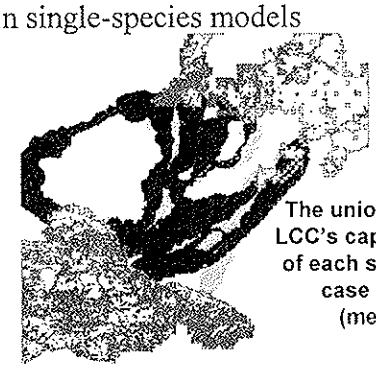




Sensitivity Analysis for 8 focal species.

1. Is the Linkage Design for an individual species stable when input parameters vary? (A: Yes for 5 species, No for 3 species.)
2. Even if individual LCC's are unreliable, is the Union of LCCs stable to uncertainty in input parameters? (A: Yes!)

Using multiple species mitigates errors in single-species models



The union of predicted LCC's captured 70-100% of each species' worst-case alternative (mean: 84%)